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Remarks

The Examiner rejects claims 1-8 and 18-26 under 35 U.S.C. 102 as being anticipated by Yahata (US Patent No. 5, 384,475). This grounds for rejection is respectfully traversed.

The Examiner asserts that the limitation "implanted region" is to be "taken" to be a product by process limitation. With all due respect to the Examiner, the Examiner is not permitted to "take" any particular limitation as a product by process limitation. Rather, the courts have spelled out when words used in a claim are to be viewed as being product by process limitations. Enclosed herewith, for the Examiner's review, is a copy of section 8.05[4] from Chisum on Patents which is entitled "Distinguishing Process and Structural Limitations".

For example, words such as "frozen", "intermixed", "ground in place", "press fitted", "chemically engraved", have been interpreted as being product limitations as opposed to product by process limitations.

As such, what is the Examiner's justification for asserting that the limitation "implanted region" is to be taken as a product by process limitation? It is noted that the word "implanted" is used as an adjective. Moreover, it is noted that a region formed by implantation is structurally different from a region formed by epitaxial growth. The Examiner's attention is respectfully directed to Figure 4A of Yahata. Region 12, to which the Examiner makes reference, is formed by ion implantation. Then, region 14 is formed on top thereof as a p-type epitaxial layer. We are told that the substrate is p-type and since region 12 is formed by ion implantation, those skilled in the art know that in region 12 the n-type material from the diffusion predominates over the original p-type dopant therein so that the region 12 is collectively n-type. However, there are both p and n-type dopants therein. With respect to the p-type epitaxial layer 14 formed on substrate 11 and on the n-type implantation region 12 therein, there is a bright line demarcation between the n and p material in region 12 versus the p only material in region 14. If, on the other hand, region 14 were formed by some sort of implantation process, then those skilled in the art would realize that region 14 would contain both p

and n-type dopants although the p-type dopants would predominate and there would be no clear bright line differentiation between region 14 and region 12.

Given the fact that a region formed by implantation is structurally different from a region formed by epitaxial techniques means, to Applicant, that the Examiner is not entitled to disregard the adjective "implanted" in a structural claim.

Turning to the claims, the Examiner will note that new claim 28 has been added. This claim is very similar to claim 1 of record, but specifically recites that the second implanted region of opposite conductivity type is implanted into a portion of the first implanted region so that the second implanted region includes dopants corresponding to the common conductivity type and the opposite conductivity type, but with the dopants of the opposite conductivity type predominating. These structural limitations inherently flow from using a relatively shallow implant, for example the p-type implant shown in Figure 1 on top of the relatively deeper n-type implant 13 also shown in Figure 1. Since the n-type implant 13 can extend all the way to the surface 15 of the semiconductor device shown in Figure 1, the n-type implant is hidden by the t-type implant in the embodiment of Figure 1.

The Examiner is thanked for the indication of allowance with respect to claims 15-17, 19-22 and 25-27. However, for the reasons indicated above, it is submitted that the Examiner's rejections of the remaining claims active in this application is improper and should be withdrawn for the reasons indicated above.

Claims 15, 18 and 19 have been amended to correct minor editorial errors noted therein. These amendments do not affect the scope of the claims.

Reconsideration of this application as amended is respectfully requested.

The Commissioner is authorized to charge any additional fees which may be required or credit overpayment to deposit account no. 12-0415. In particular, if this response is not timely filed, then the Commissioner is authorized to treat this response as including a petition to extend the time period pursuant to 37 CFR 1.136 (a) requesting an extension of time of the number of months necessary to make this response timely filed and the petition fee due in connection therewith may be charged to deposit account no. 12-0415.

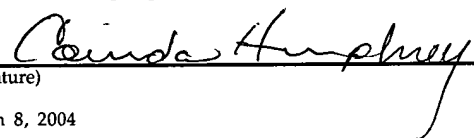
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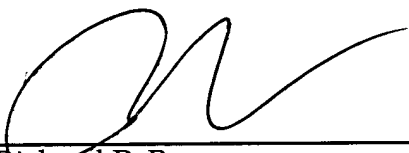
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March 8, 2004

(Date)

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**[4]—Distinguishing Process and Structural Limitations**

Certain apparent “process” words in claims are interpreted as structural limitations when they are used in an adjective non-process sense and adequately define a physical characteristic of the product.

“For example, the word ‘frozen,’ though descriptive of the process freezing, definitely describes an objective characteristic observable by inspection of the product. The courts have held a variety of such words not to be process limitations; typical are: ‘intermixed’ as descriptive of a composition of matter, ‘ground in place’ as descriptive of the manner in which spark plug porcelain is fitted into its shell, and ‘pressfitted’ as descriptive of a sheet metal structure.”<sup>1</sup>

*In re Garnero* (1969)<sup>2</sup> involved a claim which recited “expanded perlite particles which are interbonded one to another by interfusion between the surfaces of the perlite particles while in a pyroplastic state to form a porous perlite panel.” The Court of Customs and Patent Appeals held that “interbonded . . . by interfusion” should be interpreted as a structural rather than a process limitation.<sup>3</sup>

In *Hazani v. U.S. Int’l Trade Comm’n* (1997),<sup>4</sup> patent claims to a semiconductor memory cell required that a conductive plate have a surface that was “chemically engraved.” The Federal Circuit held that the claims were “true product” claims, not product-by-process claims as urged by the patentee, and were, therefore properly held to be anticipated by a prior art reference (Kuo).

reasonably appears to be either identical with or only slightly different than the claimed antibody which is produced by the recited process.”; “it is incumbent upon the examiner to advance evidence that the [reference] antibody appears to be identical to or only slightly different than the claimed monoclonal antibody that is produced by the recited process.”).

**§ 8.05[4]**

<sup>1</sup> Saxe & Levitt, “Product-by-Process Claims and Their Current Status in Chemical Patent Office Practice,” 42 J. Pat. Off. Soc’y 528, 536 (1960).

Cf. *Dennison Mfg. Co. v. Ben Clements & Sons, Inc.*, 467 F. Supp. 391, 203 USPQ 895 (S.D. N.Y. 1979) (“The ‘adapted to be severed externally of an attaching device’ language is a structural limitation, not merely a description of where the severing is to take place.”).

<sup>2</sup> *In re Garnero*, 412 F.2d 276, 162 USPQ 221 (CCPA 1969).

Cf. *Fromson v. Advance Offset Plate, Inc.*, 720 F.2d 1565, 1570, 219 USPQ 1137, 1140 (Fed. Cir. 1983) (“That a process limitation appears in a claim does not convert it to a product by process claim.”).

<sup>3</sup> See also *Vanguard Products Corp. v. Parker Hannifan Corp.*, 234 F.3d 1370, 1372, 57 USPQ2d 1087, 1089-90 (Fed. Cir. 2000), discussed *infra* and at § 18.07[4][b]; *Hazani v. U.S. Int’l Trade Comm’n*, 126 F.3d 1473, 44 USPQ2d 1358 (Fed. Cir. 1997), discussed *infra*; *In re Stepan*, 394 F.2d 1013, 156 USPQ 143 (CCPA 1967) (“Condensation product” is a structural rather than a process limitation); *In re Certain Steel Rod Treating Apparatus*, 215 USPQ 237 (U.S. Int’l Trade Comm’n 1981) (citing *Treatise*).

<sup>4</sup> *Hazani v. U.S. Int’l Trade Comm’n*, 126 F.3d 1473, 44 USPQ2d 1358 (Fed. Cir. 1997).

"[The patentee] argues that the 'chemically engraved' claims are product-by-process claims. We agree with the respondents, however, that those claims are best characterized as pure product claims, since the 'chemically engraved' limitation, read in context, describes the product more by its structure than by the process used to obtain it. *See In re Moore*, 439 F.2d 1232, 1236, . . . 169 USPQ 236, 239 (1971); *In re Garnero*, 412 F.2d 276, 278-79, . . . 162 USPQ 221, 223 (1969). As such, the claims are anticipated, because the claimed products are found in the prior art."

"The specification of the . . . patent describes the 'chemically engraved' surfaces as 'textured with asperities' as a result of oxidation. See . . . col. 7, lines 47-51 ('the floating gate 30's surface is oxidized . . . such that mainly the top surface of layer 30 . . . is textured with asperities'). Kuo similarly discloses a conductive plate and states that a surface of the conductive plate adjoining the insulator may be textured with asperities. See Kuo, col. 4, lines 41-43 ('Asperities, or roughness, of the polysilicon-dielectric interfaces are relied upon to decrease the erase voltages to reasonable levels.')."5

In *Vanguard Products Corp. v. Parker Hannifan Corp.* (2000),6 a patent claim required a thick layer and a thin layer "integral therewith." The patent's

5 126 F.3d at 1479, 44 USPQ2d at 1363.

6 *Vanguard Products Corp. v. Parker Hannifan Corp.*, 234 F.3d 1370, 57 USPQ2d 1087 (Fed. Cir. 2000), discussed at § 18.07[4][b].

See also *Stryker Corp. v. Davol Inc.*, 234 F.3d 1252, 1258, 57 USPQ2d 1133, 1138 (Fed. Cir. 2000) (claim term ("locator") is defined by the structure claimed "without imputing functional limitations from the specification into the claims."); *Newell Window Furnishing Inc. v. Springs Window Fashions Division Inc.*, 53 USPQ2d 1302, 1318 (N.D. Ill. 1999) (FOLDED; "The primary issue of claim construction is whether the claims in suit are subject to a process limitation. [An accused infringer] contends that the following italicized language, found in both claims, limits the scope of those claims to devices made by a strip method: '[A] strip of shade material folded lengthwise to form an upper cell wall and a lower cell wall extending from a fold, each upper and lower cell wall having a free edge and a folded edge . . .'; the patent owners "characterize the italicized language as a structural definition rather than a process limitation and contend that the claims extend to any cell described in the claims, regardless of the method of manufacture."; PAST PARTICIPLE OR ADJECTIVE? "This question derives from an ambiguity in the word 'folded.' [The accused infringer's] interpretation would read 'folded' as a past participle, requiring that at some stage of manufacture a strip of shade material be folded to create one free edge and one folded edge. [The patent owners] would read 'folded' as an adjective, requiring merely that the final product contain a strip of material with a fold in it."; "Placed in context, [the accused infringer's] reading would find an anomalous process limitation among unambiguous product claims. This reading of the italicized language strains the language of the claim well beyond its most natural meaning."); *R2 Medical Systems, Inc. v. Katecho, Inc.*, 931 F. Supp. 1397, 1425-26 (N.D. Ill. 1996) (citing *Treatise*; in a claim requiring that one element be "affixed" to another, " 'affixed' means 'to be attached physically.' . . . The terms of the claims do not indicate that 'affixed' refers to a process by which the stannous chloride is bound to the conductive plate, but only that it refers to the result of that process. *See CVI/Beta Ventures, Inc. v. Custom Optical Frames, Inc.*, 893 F. Supp. 508, 519 (D. Md. 1995) (limitation that element be in 'work-hardened

specification taught a "co-extrusion" method for forming a composition of two materials, which entailed forcing the materials through dies. The court held that the claim was not limited to limited to co-extrusion. It noted that (1) "[t]he [patent's] specification shows that the term was used to describe the product, and not as a designation of a specific manufacturing process."; (2) "the word 'integral' describes the relationship between the elastomeric layers, not the means of joining them. This word did not limit the claim to the manufacturing process set forth in the specification."; and (3) "review of the prosecution history shows that during examination the examiner as well as the applicant treated the product claims as directed to the product itself, and examined the application accordingly."<sup>7</sup>

pseudoelastic metallurgic state' speaks to the structure, not the process, of manufacture). The asserted claims are all product claims, specifically apparatus claims, and not method or process claims."; "Even where terms are amenable to interpretation as a procedure of manufacture, apparent 'process' terms should be interpreted as structural limitations when used in an adjective non-process sense and define a physical characteristic of the apparatus."; "Describing this best mode will often require the applicant to include a description of a preferred process for manufacturing the claimed apparatus. But this does not transform a structural limitation into a process limitation.").

Cf. *Greenberg v. Ethicon Endo-Surgery, Inc.*, 91 F.3d 1580, 39 USPQ2d 1783 (Fed. Cir. 1996).

<sup>7</sup> 234 F.3d at 1372, 57 USPQ2d at 1089-90.